ISIS FROM SPACE

SATELLITE DATA GIVE RAND RESEARCHERS AN UNPRECEDEDENTED LOOK AT LIFE INSIDE THE ISLAMIC STATE PAGE 12

EARLY CHILDHOOD programs: Worth the investment

The British approach to FREE CHILD CARE
1. Later School Start Times in the United States
This economic analysis of a universal 8:30 a.m. start time suggested that delaying school start times is a cost-effective policy change, which could have a significant impact on public health and the U.S. economy.
MORE AT www.rand.org/t/RR2109

GTO is a user-friendly, ten-step process for comprehensive planning, implementation, and evaluation of programs and community initiatives. This tool can help prepare populations to cope with disruptions and lessen the burden on systems and hospitals.
MORE AT www.rand.org/t/TL259

3. Lessons from Cuba’s Health Care System
The United States’ high health care costs do not yield corresponding health outcomes for its citizens. Conversely, Cuba, with less than a tenth of U.S. expenditures, has attained comparable outcomes on many indicators, particularly life expectancy and infant mortality.
MORE AT www.rand.org/b171006cuba

4. Hypersonic Missile Nonproliferation
RAND experts warn that there is probably less than a decade available to substantially hinder the proliferation of hypersonic missiles—a new class of military threat capable of maneuvering and flying faster than 5,000 kilometers per hour.
MORE AT www.rand.org/v170927

5. Cannabis Legalization in Canada: Prices, Taxes, and International Implications
Beau Kilmer, codirector of the RAND Drug Policy Research Center, presented testimony before the House of Commons of Canada Standing Committee on Health in September 2017.
MORE AT www.rand.org/t/CT481
Satellite data allowed researchers to visualize nighttime lighting in cities under Islamic State control. This image shows the Iraqi city of Mosul in 2014, just before the Islamic State took over. The image on the cover shows Mosul in March 2016, under Islamic State control, when nighttime lighting had fallen by 55 percent.

Satellite data allowed researchers to visualize nighttime lighting in cities under Islamic State control. This image shows the Iraqi city of Mosul in 2014, just before the Islamic State took over. The image on the cover shows Mosul in March 2016, under Islamic State control, when nighttime lighting had fallen by 55 percent.
On the Ground in Puerto Rico

Two weeks after Hurricane Maria raged across Puerto Rico, leveling entire neighborhoods and filling the streets with floodwaters, a small team of RAND researchers landed on the island.

They were there to assess the federal and military response to one of the most intense Atlantic storms ever recorded. What they found was a humanitarian disaster that had quickly overwhelmed local and state emergency responders and forced FEMA and the Department of Defense to react more rapidly and with a larger effort than anticipated.

The researchers—Bryan Boling, Kenneth Girardini, and Ryan Schwankhart—all work with the RAND Arroyo Center, a federally funded research and development center within RAND’s Army Research Division. Center director Timothy Bonds reached out to the Army within days of the hurricane’s landfall to volunteer RAND experts and expertise.

The researchers saw evidence of Maria’s power as they flew into Puerto Rico in early October: roofs torn away, dark neighborhoods with no power. They spent nearly a week at the convention center in San Juan, observing the response from inside the Army’s makeshift headquarters there. Boling and Eric Larson, a senior policy researcher at RAND, returned to the island in November to conduct additional interviews.

In most disasters, a state governor requests federal assistance when the damage exceeds local and state response capabilities. The state then establishes what it needs, and federal responders attempt to meet those requirements. After Maria, though, Puerto Rico’s emergency-management system was itself struggling to get information. That forced the commonwealth, the federal responders, and the military to adapt their plans and procedures to meet the island’s needs under extraordinary circumstances.

That meant the Army would need to play a much bigger role than it usually does. The Defense Department and FEMA had trained for such a combined response, but those occasional training drills had not prepared either of them for what they faced in Puerto Rico. Their roles, authorities, and priorities were sometimes in conflict, the researchers found. It also wasn’t initially clear they were effectively sharing information, although that had improved when the researchers returned a month later.

The Arroyo Center is now compiling those on-the-ground observations into a series of studies for the Army, with recommendations to smooth its response to future disasters.
What’s the Buzz About Delivery Drones?

The future of package delivery might sound a little less like the rumble of a truck, and a little more like the electric whine of a pint-sized delivery drone.

Those little drones won’t work for everything; you won’t see refrigerators or pianos buzzing through the air anytime soon. But if delivery companies could put their smallest packages on drones instead of trucks, RAND research suggests, they could put a small dent in their gas consumption and air pollution.

Researchers modeled a day of deliveries around Minneapolis, Minn., but with packages weighing five pounds or less carried by drones instead of trucks. Those smaller packages represented about 20 percent of the day’s deliveries, and taking them off the road freed the trucks from nearly 500 miles of delivery trips.

That would save about 50 gallons of diesel fuel a day, the researchers estimated, even assuming the trucks were energy-efficient hybrids. The drones would run entirely on electricity, and generating it would use the equivalent of around 20 gallons of fuel. That leaves an overall savings equal to 26.4 gallons of diesel fuel, a little more than 5.5 percent of the daily truck total.

That may not sound like much, but it would add up day after day. Depending on where the drone electricity comes from, it could also have a much lower carbon footprint and produce less local air pollution, the researchers concluded.

That’s not the only consideration, of course. Delivery companies still have to navigate flight restrictions before drone deliveries become a daily reality. They also have to address noise pollution: the rumble of a truck might prove to be a welcome sound compared with that electric whine.
In her new book, RAND’s Susan Marquis takes readers inside the fight to improve working conditions in the Florida tomato fields, once some of the most brutal workplaces in American agriculture.

The book, *I Am Not a Tractor! How Florida Farmworkers Took on the Fast Food Giants and Won*, was released in December by Cornell University Press. It traces the history and victories of the Coalition of Immokalee Workers, a grassroots group of farm workers and community leaders who wrested better wages and working conditions from major tomato growers and their corporate buyers.

The coalition saw that those corporate buyers—mostly grocery and fast food chains—held the real power to improve their conditions. Through public protests and boycotts, they convinced those buyers to pay a penny more per pound of tomatoes and to uphold a code of conduct prohibiting physical violence, sexual harassment, and other abuses in the fields. That comprehensive approach, Marquis says, transformed Florida’s tomato fields into some of the best agricultural workplaces in America, without the need for new legislation, regulation, or government participation.

Her book is the product of years of independent research and personal interest. Essential support from RAND enabled her to begin writing during a two-month fellowship at RAND Europe.

*I Am Not a Tractor!* is not the only recent recognition of the coalition’s success. The Smithsonian’s National Museum of American History has put on display a papier-mâché model that the coalition used in its protests, of the Statue of Liberty holding a bucket of tomatoes. In October, group cofounder Greg Asbed received a “genius grant” from the John D. and Catherine T. MacArthur Foundation on behalf of the coalition.
Susan Marquis is dean of the Pardee RAND Graduate School and vice president of innovation at RAND. She holds the distinguished chair in policy analysis at RAND, which allows her the flexibility and freedom to pursue new ideas, address critical problems that are underfunded, and shape emerging policy debates.

Q What was it about this story that caught your attention?

A It really started in 2009, when I read about modern-day slavery cases in the Florida tomato fields. You had people locked in panel trucks and fed through slots and released to go to work; there was routine violence in the fields. And it was all unknown. I viewed myself as someone pretty well-informed about food policy, and to read that in 2009, in the United States, you would have this kind of rampant abuse, was shocking. Truly shocking.

Other journalists and authors have covered parts of this story. What were you hoping to add?

I have a longtime interest in what it takes to actually effect change. You can do the research, you can make the recommendations, but that’s not enough. You must have a deep understanding of how to implement policy. And I realized that’s what I had to offer: What does it take to solve a persistent and complex policy problem? Why has this worked when most other programs have not? Talking about not just where the ideas came from, but how they are implemented.

Why has this worked?

There’s no other program like it with this kind of comprehensive approach. They have work standards that come from the workers themselves, 24/7 monitoring from a worker hotline, plus independent audits. Their Fair Food Program uses the market for enforcement. If growers are not in compliance then they will lose market share immediately. The big brands won’t buy from them. That extra penny per pound of tomatoes—that is the top of the food chain taking responsibility for the entire food chain, for the treatment of the workers. It’s a minimal cost to them—for a company like Taco Bell, it doesn’t even add a penny to every customer’s overall purchase. But it’s an active declaration of responsibility.

You make the case in the book that all levels of the supply chain benefit.

The workers, obviously, are paid more, they’re safe, they have a healthy working environment free from abuse. They have a place at the table. The growers benefit from a much more stable workforce; they’re not getting the kind of turnover they were seeing, which means people are not only better trained but also more invested in the success of that grower. And then the big corporations buying the tomatoes have this real advantage of protecting their brand. That brand is their greatest strength and their greatest vulnerability, so to know they have a clean and protected supply chain is brand protection for a minimal amount of money.

Is this a model that could work in other industries?

It obviously applies to large-scale agriculture. It has expanded, in tomatoes, from Florida all the way up to New Jersey. It’s starting to move into peppers and strawberries. The Fair Food Program model has expanded to the dairy industry in Vermont: The Coalition of Immokalee Workers has been advising a group called Migrant Justice, who just signed an agreement with Ben & Jerry’s. But this model can reach much further, to factories and other low-wage workplaces in the global supply chain.

Is there one moment that really sums up what the story is about?

I think it’s when the coalition had the courage to step back and recognize that the traditional methods of protests and strikes were not sustainable and were not going to have large-scale, systematic effects. It was that recognition that they needed to look outside the farm gate and look at the supply chain as a whole, that the power was at the top of the supply chain and they could put pressure on corporate brands to compel change. It was a remarkable insight and an absolute turning point.
A FOCUS ON THE RESEARCH OF Jill S. Cannon, M. Rebecca Kilburn, Lynn A. Karoly, Teryn Mattox, Ashley N. Muchow, and Maya Buenaventura

Investing Early
The Economic Returns of Early Childhood Investments

By Doug Irving, Staff Writer

The evidence has been mounting for decades: Programs that help children learn and grow in their earliest years can change the trajectories of their lives.

That’s especially important for children in disadvantaged families who often face obstacles to success from the day they are born. Done well, programs like home visiting and early childhood education can offer them a better shot at a better life.

RAND researchers were among the first to demonstrate the enormous potential of early childhood interventions in the 1990s. A new report compiled research on 115 programs—and found that 102 made a clear and positive difference in young lives.

“The bottom line is this: All the different ways that we examined this issue pointed to the same conclusion,” said M. Rebecca Kilburn, a senior economist at RAND and a coauthor of the study. “What’s exciting about this is that we’re getting to the point where policymakers have a lot of evidence that well-implemented early childhood programs are a good investment.”
“All the different ways that we examined this issue pointed to the same conclusion.”

This mother reads with her three-year-old daughter at a Head Start program in Boston in 2013.
“We have, really, a mountain of evidence now, and that gives us confidence that programs that are run well, are high quality, can return more in benefits than they cost and can make a difference.”

Hope for the hard-pressed

San Felipe Pueblo is a bend in the road about 25 miles north of Albuquerque, New Mexico, a scattering of homes on the banks of the Rio Grande. It’s an old Native American farming village, known for its annual corn dance, where bread baking in traditional backyard ovens sweetens the air. Its 3,500 residents still grow up speaking the indigenous Keresan language.

It has fought hard to preserve its traditions in the face of poverty and economic isolation. Like disadvantaged communities from inner-city Detroit to rural New York, it has focused especially on raising up its youngest generation. It has a small team of family health educators, drawn from the pueblo itself, who visit new mothers in their homes and offer them support and guidance in their own language.

The program’s name, Project KEVA, stands for Katshitya Eh-wahs Valued Always in Keresan: San Felipe Kids Are Valued Always. Its symbol is a butterfly.

“Every client that comes in faces a lot of struggles and a lot of hardship within their lives,” said Shawna Trancosa, one of the home visitors. “We chose the butterfly because we have the potential, we have the experience, to help them change and do better for themselves and their children.”

For San Felipe and hundreds of other communities across America, that focus on early childhood is hope for the future. It’s also a recognition that social and economic disparities can leave a mark long before grade school.

Getting ahead of the curve

By the time children turn five, they have already experienced the greatest developmental period in their lives. If they come from disadvantaged backgrounds, too many of them have also already started to fall behind. One study found that children of working
professionals heard 30 million more words by age 3 than children whose parents were not so well-off.

Yet the United States spends much less on early childhood education, as a share of its economy, than other wealthy nations. About two-thirds of American four-year-olds attend preschool or other early education programs. Among 36 of the world’s most developed nations, only Switzerland, Greece, and Turkey have lower rates.

A small team of RAND researchers has been studying early childhood education, home visiting programs, and other childhood interventions for nearly 20 years. Its first report, published in 1998, helped change the conversation around early childhood programs by showing that they could make a real and lasting difference. The researchers followed that up in 2005 with a report looking at 20 programs and again finding clear evidence of positive change for the children enrolled.

Their latest report, released in November, expanded that to 115 programs, all of which had undergone rigorous evaluations. The programs ranged from parenting classes to pre-Kindergarten to the home visiting curriculum used in San Felipe Pueblo. The study, sponsored by the Robert Wood Johnson Foundation, sought to answer two questions: Do the programs work, and are they worth the investment?

Yes, and yes, the researchers concluded.

What the data show

By their most basic measure, 102 of the 115 programs improved at least one outcome for children beyond a statistical doubt. That was an 89 percent success rate.

“\textit{I wanted to strive more and just do more things for my child, to be the best parent I can be. That’s what I try to pass on to new mothers.}”

SHAWNA TRANCOSA
But assessments of early childhood programs tend to take a kitchen-sink approach. Does the program improve behaviors? What about test scores? Are the children happier? Healthier? More focused? How are their body mass indexes?

When the RAND team looked at every child outcome in every study of the 115 programs—more than 3,000 measured outcomes in all—they found that 29 percent showed convincing evidence of improvement. Most of the rest were what statisticians call “null,” meaning there wasn’t enough evidence to say one way or the other. That’s a winning percentage given the sheer range of outcomes measured, the researchers said—about six times higher than random chance alone.

“It doesn’t mean that everything will turn to gold,” said study lead author Jill Cannon, a senior policy researcher at RAND. “But the evidence base is only growing stronger that if you’re a policymaker and you invest in these early childhood programs, it’s likely to pay off.”

In fact, the researchers found that returns of $2 to $4 were typical for every dollar invested in early childhood programs. That number, though, comes with an asterisk. Very few of the programs had gone through a formal cost-benefit analysis, and even those that did struggled to pin dollar values on social benefits like school readiness or emotional development.

Critics of government-funded preschool programs often point to a phenomenon known as fadeout. Some studies have found higher test scores among children in pre-K programs—but have also found those advantages fade to nothing as the children move into grade school and other students catch up. But the RAND study, like others, found that the economic and social benefits continue to pay dividends, sometimes well into adulthood. “It’s not all about test scores,” said study coauthor and senior economist Lynn Karoly.

The researchers noted that their study does have a few limitations. Many of the programs they looked at were small-scale demonstration projects, serving a few hundred children at most. That can raise questions about whether the results would be as strong in scaled-up programs serving more children. Some also were too expensive and intensive to work in many communities; total costs ranged from $150 for a brief parent-education class to nearly $50,000 for a comprehensive, multiyear program of center-based care, education, and home visits.

Nonetheless, the study represents the most comprehensive look to date at the potential benefits of early childhood programs. Policymakers have a menu of good options to choose from when it comes to early childhood interventions, the researchers concluded. But quality counts: “Forty kids and a ball,” as Kilburn put it, is not likely to produce the same kinds of results.

“We have, really, a mountain of evidence now,” Karoly said. “And that gives us confidence that programs that are run well, are high quality, can return more in benefits than they cost and can make a difference.”

Better outcomes

Trancosa sees that every day in San Felipe.

She works with 30 new mothers, counseling them on parenting practices, reminding them to get their children vaccinated. She also teaches them about their heritage, preserving a way of life that has guided San Felipe families for generations.

A study last year found that the program improved parenting outcomes, parental involvement, and cultural connections, program managers said. Its curriculum, Family Spirit, has been shown to improve parenting knowledge and child behavior in ways that predict better outcomes for native children, often among the most disadvantaged in the nation.

In San Felipe, Trancosa has seen it inspire new parents to go back to school to better support their children; has seen teenage mothers respond with cool confidence to a baby’s temper tantrum; and has seen whole families, from the grandparents to the children, gather around her flip charts to learn how to help their newest family members succeed.

She sees the benefits of the program most clearly in her own son, B.J., a healthy, happy two-year-old, eager to explore and learn. Before she was a program staffer, Trancosa was a program client, a young mother struggling to make ends meet, who wanted a better life for her baby.

“I had all these questions in mind, and I never had anyone there to answer my questions or even just walk me through my pregnancy,” she says now. “I wanted to strive more and just do more things for my child, to be the best parent I can be. That’s what I try to pass on to new mothers.

“The children we have don’t come with instructions. How well we take care of them will follow them—and us—through life.”

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Of the 115 programs, they found that 102 showed convincing evidence of improvement.
A sandstorm swept through the besieged Iraqi city of Ramadi on the day it fell to the Islamic State. In the murk and confusion, suicide car bombs raced into the city center and leveled entire blocks. By the afternoon, the black flag of ISIS flew from the government headquarters.

Hundreds of miles above, an array of satellites captured what came next. Markets emptied. Factories went cold. Fields of wheat and barley withered. And the lights went out all over the city.

Data from those satellites provided RAND researchers an unprecedented look at life inside the Islamic State. They found a path of economic destruction, with few exceptions. In city after city, as in Ramadi, the arrival of the Islamic State meant a plunge into darkness.
Researchers used satellite data to visualize agricultural productivity in Iraq and Syria. The data allowed them to estimate how much land was planted, as shown in green in this image, and measure changes under the Islamic State. This image shows the area around Raqqa in 2014, shortly after ISIS took control, at the time of peak harvest.

West Mosul, Iraq, June 2017
The local economies

By the time Ramadi fell in mid-2015, the Islamic State controlled an area of Iraq and Syria approaching the size of Great Britain. Its advance had been ruthless, its brutality staggering. RAND researchers wanted to know: What happened to cities and local economies when the Islamic State tried to govern?

Satellites were their way in.

Satellite observations have opened windows on everything from nuclear weapon programs to rush-hour traffic in the decades since RAND first proposed a “world-circling spaceship” in 1946. The United States alone now has more than 800 active satellites in orbit; more than half of them are commercial. Analysts have used satellite data to measure poverty in Kenya, black markets in North Korea, even the number of customer cars in Home Depot parking lots.

Those same kinds of data, RAND researchers realized, could provide a remarkably detailed look inside one of the most dangerous places in the world.

Satellite data measuring surface reflections from the Earth, for example, would show how much land was planted for agriculture. Urban heat readings would help pinpoint working factories. And infrared ground scans would show where city lights were glowing in the night, bright spider webs against a dark background.

The researchers collected data on more than 150 cities in Iraq and Syria, month by month. They estimated that as much as a third of the population had fled areas under ISIS control. Factories closed; fields dried up. In Syria, more than 60 percent of the lights went dark as ISIS struggled to restore electricity or fuel generators. In Iraq, it was more like 80 percent.

“What’s unique about this is that we were able to bring all these different measurements together and provide a much more holistic understanding of the local economies,” said Eric Robinson, a research programmer and analyst at RAND who led the project. “We were able to use nighttime lighting to understand electricity consumption, but control for population levels. We knew that if an entire city had depopulated, then there was no one there to turn the lights on.”

A tale of two kinds of cities

The researchers then zoomed in on five major cities using high-resolution photographs from commercial satellites. Those photographs, similar to the satellite-view images on Google Maps, were so detailed the researchers could count cars on the road or measure foot traffic at a market. A small army of volunteers helped them go through the images, one by one, and perform those counts by hand—a crowd-sourced solution to a big-data problem.

The images told two very different stories.

In cities like Ramadi, Tikrit, and Deir ez-Zor, where ISIS was under fire and struggling to maintain control, its rule brought economic decay. Satellite images of the main market in Ramadi, for example, showed a ghost town. Commercial trucks all but disappeared from the roads in Tikrit. And in Deir ez-Zor, the lights went dark in ISIS-controlled neighborhoods even though the group held massive oil fields outside the city that could have kept generators running.

But in the core of the caliphate, where ISIS control was more secure, the satellite images showed some
evidence of effective governance. In its capital city of Raqqa, for example, the group managed to keep the lights on at hospitals even when the rest of the city went dark, a sign that it was managing electricity. In the big city of Mosul, the group transformed an open-air market into a covered shopping district that was soon bustling with shoppers and car traffic—all of which it could tax.

“There were obviously just terrible stories of brutality coming out of the city, but people still need to buy food, and shop owners still own shops, and goods are still moving in and out of this market,” Robinson said.

“One of the key takeaways of our report,” he added, “is that without the military campaign to retake this territory, the Islamic State could have tried to replicate some of the modest success it experienced in Mosul and Raqqa. We would be facing a much different enemy.”

Preparing for a post-ISIS recovery

In fact, the researchers concluded it wasn’t necessarily the harsh rule and high taxes of ISIS that ground out local economies. The group was constantly trying to fend off counterattacks and air strikes, and could not turn its attention to governing or building back local economies.

Its caliphate has since splintered. It lost Tikrit in 2015, Ramadi in early 2016. Iraqi forces declared Mosul liberated last year, after dislodging ISIS forces neighborhood by neighborhood. A RAND analysis calculated that the Islamic State had lost more than half its territory by early 2017, a rout that has continued since then.

The disintegration of the Islamic State as a state has given RAND’s satellite analysis new importance. No longer a window into how the group governs, though, it is now providing a window into the economic damage it left behind, and what it will take to rebuild. Researchers have been working with U.S. government agencies to prioritize work in Syria to help stabilize cities captured from ISIS—restoring the electric grid, for example, or investing in markets.

“I think the big concern in this region is that if we don’t help truly rebuild and reconstitute the local governance in those areas, that there will be a resurgence of an ISIS 2.0 or an ISIS-like group,” Robinson said. He’s hoping to continue tracking the satellite data, “to measure our progress so far, to make sure we don’t take our foot off the gas too soon.”

The scale of that need is apparent in Ramadi. It’s been almost three years since ISIS fighters swept into the city in the blur of a sandstorm, and two years since Iraqi forces swept them back out. RAND’s satellite data showed destruction in almost every neighborhood in the city; every bridge was demolished. The city was once home to nearly 300,000 people; RAND’s data suggest no more than 36,000 still lived there after ISIS.
Since 2010, every 3- and 4-year-old in Britain has been guaranteed 15 hours of free child care a week for 38 weeks a year, the equivalent of a full school term. Most working parents of preschoolers can now claim 30 hours of free care a week, a major advance for a country that long lagged behind its European peers in providing affordable, quality child care.

Although it has a long way to go to catch up with Scandinavian nations, whose policies are considered the most family-friendly in the world, Britain is setting an example that could compel serious attention in the United States. The struggle to reconcile the demands of work and family life is similar on both sides of the Atlantic, yet the U.S. is alone among major Western democracies in its failure to invest in child care for all.

Britain’s expansion of free early care, which took effect September 1, 2017, is the centerpiece of government efforts to support working families grappling with child care bills that are among the highest in Europe, often costlier than a mortgage. Conservative and liberal leaders alike are united behind the program, viewing the extra £1-billion-a-year investment (about $1.3 billion) as a social good and essential to England’s economic vitality.

The new program is not perfect. Unlike the 15-hour allowance, it requires that parents earn at least the equivalent of 16 hours a week at minimum wage, effectively shutting out those at the lowest income levels who arguably have the greatest need for free child care. In two-parent families, both parents must be working and neither can earn more than £100,000 a year (about $132,000).
The national rollout of the 30-hour entitlement has been marred by technical glitches and complaints from care providers that it is underfunded, possibly making it difficult to ensure a high quality of care. Many nurseries are tacking on surcharges for snacks and trips or closing their doors altogether.

No one denies, however, that the program is helping people balance their family and professional lives. My research on child care policy for RAND Europe as part of the European Platform for Investing in Children study bears this out, as does my own experience as the mother of three young children.

After the birth of my first child, in 2009, I returned to work but discovered that after paying the nursery cost, I was substantially worse off than when I was on the UK’s statutory maternity leave pay. Two years later my second child was born, but I stayed home until my oldest turned 3 and was eligible for the 15 hours of free care. Still, I only worked part-time because of high child care costs.

This scenario plays out across many European countries, with mothers far more likely than fathers to reduce working hours in order to care for their children. In Britain, a couple earning average wages spends about 27 percent of their income on early-years care, more than twice the average of the 34 developed nations in the intergovernmental Organisation for Economic Co-operation and Development (OECD). Despite its wealth, the U.S. ranks fourth from the bottom of OECD countries in public spending on child care and pre-primary education.

U.S. parents, at the mercy of the private market, pay an annual average of nearly $9,600 for full-time care of children age 4 and under. That figure exceeds the average cost of tuition in a four-year public college in most states, according to a 2017 report from the New America think tank. American women, like their British counterparts, cite the high cost of care as a major reason for dropping out of the labor force after having a child. Studies show that maternal employment in the U.S. is lower now than at any time in the past 20 years. Meanwhile, child poverty is rising.

One of the most powerful arguments for investing in quality early childhood programs comes from an American, Nobel Prize–winning economist James Heckman. His groundbreaking studies have shown that public preschool programs yielded a sizable return per year through improved educational outcomes, lower risk of criminal behavior, and higher future earnings. He and other researchers, including Lynn Karoly, a senior economist at RAND, find the returns are greatest for disadvantaged children. Investments in later childhood do not pack the same wallop.

“High-quality early childhood programs,” Heckman said, “can boost the upward mobility of two generations by freeing working parents to build their careers and increase wages over time while their child develops a broad range of foundational skills that lead to lifelong success.”

The U.S. embraced universal child care during World War II, when the federal government provided heavily subsidized day care to all families regardless of income. “These programs reorganized one kind of domestic labor—childrearing—to enable another kind: paid labor in the domestic economy that helped fortify America against its foreign enemies,” Rhaina Cohen wrote in The Atlantic. It almost happened again, in 1971, when Congress passed the Comprehensive Child Development Act. Former president Richard Nixon vetoed it.

If public school is free for kindergarten through high school, why not extend the same guarantee for the earliest years when, research shows, potential impact is greatest? On this question, Britain has answered yes and is laboring to expand its commitment. The U.S. has much farther to go, but can learn from Britain’s experience and its own history. ☒

A version of this commentary appeared on USA Today in October 2017.
One Night with RAND

Celebrating RAND’s partnership with the U.S. Air Force

RAND hosted One Night with RAND in November 2017, a fundraising event bringing together leaders in business, government, academia, and philanthropy to pay tribute to the seven-decade relationship between RAND and the U.S. Air Force. Held in Santa Monica, California, the event featured a panel discussion moderated by journalist and RAND trustee Soledad O’Brien on the role of trust in leadership. Panelists included retired Air Force General Larry D. Welch, 12th Chief of Staff, U.S. Air Force; Elizabeth Sherwood-Randall, Deputy Secretary, U.S. Department of Energy (2014–2017); and RAND president and CEO Michael D. Rich. They discussed what it takes to get—and to give—effective and trusted advice for making decisions at the highest levels, including decisions that have national security implications.

The event also honored three individuals who have supported the Air Force–RAND partnership: Natalie Crawford, vice president and director of RAND Project AIR FORCE (1997–2006); Donald B. Rice, 17th U.S. Secretary of the Air Force and former president and CEO of RAND; and Susan F. Rice, a fundraising consultant who helped establish RAND’s development program.

The event recognized the spirit of trust cultivated by RAND and the Air Force during a seven-decade partnership.

Michael Rich with the evening’s honorees, Susan and Don Rice, and Natalie Crawford. The event marked their leadership and their contributions both to the United States and to RAND.
Proceeds from One Night with RAND support RAND Ventures, our vehicle for investing in policy solutions. Philanthropic contributions help support RAND staff who aspire to pursue visionary ideas; address critical problems that are underresearched; shape emerging policy debates; and devise innovative approaches for solving acute, complex, or provocative policy challenges.
Former Defense Secretary Frank Carlucci’s service to RAND spans more than 30 years. He’s been a board member, an advisor, a committed donor to RAND and the Pardee RAND Graduate School—and in his family, that’s just the start.

He rejoined RAND’s board in 1989 and served almost without break until 2007, when he became a trustee emeritus. He also worked during that time as the chairman of the Carlyle Group investment firm.

His daughter, Kristin, grew up with the same interest in public policy and earned a master’s degree in international relations from Johns Hopkins. At RAND and RAND Europe, she worked on topics ranging from drug abuse to terrorism to rethinking the educational system of Qatar. Her future husband, Joshua, was working on a dissertation at Pardee RAND that would help the Air Force improve its housing procurement.

“It’s such a unique place,” Kristin said. “The same organization has so many different facets to it. It’s just been a constant in our lives and my parents’ lives.”

Frank and Marcia Carlucci now serve together on the RAND President’s Council, a small group of top donors that provides philanthropic support and advice. They also provide annual grants, the Carlucci Investigator Awards, to promising researchers to give them the freedom to think beyond project work. Their total gifts exceed $2 million.

In recent years, they have focused their support especially on Pardee RAND and its students. They endowed an annual scholarship in 2012 that has since sponsored ten first-year students, allowing them to pursue their Ph.D.’s in public policy.

“It’s always a pleasure, with each new presidential administration, to see the number of staffers who have come from RAND,” Marcia Carlucci said. “You know, regardless of political affiliation, that their interests will be to change the world in the best way possible.”

That’s what sets RAND apart, Frank Carlucci said—its commitment to follow the research wherever it leads. “I learned that nothing at RAND is sacrosanct,” he said. “That’s the essential value of the undertaking. People are allowed to think, which is not too common these days.”

FRANK CARLUCCI
Think of Merton Davies as RAND’s own Bo Jackson. While Jackson achieved all-star status in two sports—baseball and football—Davies is a legend in two much wonkier worlds.

Affiliated with RAND from 1947 until his death in 2001, Davies played for two teams in his long career. Known as “Mert” to one and all, he spent his early years using satellite imagery to spy on terrestrial targets, and his later years using deep-space photographs to map the planets in our solar system.

To achieve the latter, Davies worked with NASA imaging teams on unmanned missions like Mariner, Voyager, and Galileo. He and his team magnified planetary images, identified landmarks, and painstakingly counted pixels to determine precise coordinates and establish the prime meridian—zero longitude, the basis of every map—for all planets in the solar system except Earth. As RAND colleague Bruce Murray said in Davies’ obituary, to have established just one planet’s prime meridian would be considered a major achievement. Davies established seven of them.

“Mert has single-handedly observed more of the solar system than any other human,” Torrence Johnson, project scientist of Project Galileo, told The New York Times in 2001. A crater on Mars also bears Davies’ name.

Davies knew Earth pretty well, too, given that his first career involved spying from space. His early work led to the first successful reconnaissance satellite (Corona), and he helped interpret U-2 spy plane images of Cuban missile sites. Davies also patented a spin-pan space camera for wide-angle mapping.

Unlike Jackson—who isn’t in a professional Hall of Fame despite being considered one of the greatest athletes of all time—Mert had more generous colleagues. A year before his death, he was honored as one of 10 “founders of national reconnaissance.” Bo may know ball, but Mert understood the cosmos.
The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.